

REMARKS/ARGUMENTS

Reconsideration and allowance are respectfully requested.

Remarks Regarding Claim Amendment

The amendment to claim 2 is supported throughout the Specification, such as, for example, on page 2, lines 29-32 of the Specification.

Entry of the amendment is requested.

Remarks Regarding Section 103

A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *In re Kahn*, 78 USPQ2d 1329, 1334 (Fed. Cir. 2006) citing *Graham v. John Deere*, 148 USPQ 459 (1966). The *Graham* analysis needs to be made explicitly. *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (2007). It requires findings of fact and a rational basis for combining the prior art disclosures to produce the claimed invention. See *id.* (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue”). The use of hindsight reasoning is impermissible. See *id.* at 1397 (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and

must be cautious of arguments reliant upon ex post reasoning”). Thus, a prima facie case under Section 103(a) requires “some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct.” *Kahn* at 1335; see *KSR* at 1396.

Claims 1, 3-10 and 13-20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi (U.S. Patent 6,444,841 B2), Chauhan (Synlett, 1999, No. 11 pp. 1743-1744), Krill (U.S. Patent 6,239,294 B1), and Schneider (Applied Catalysis A: General 220 (2201), pp. 51-58). Applicants traverse.

Solely in an effort to expedite prosecution, Applicants have amended claim 1. Amended claim 1 relates to a process for the manufacture 2,3,5-trimethylhydroquinone dialkanoate comprising reacting ketoisophorone with an acylating agent in the presence of an indium(III) salt as a catalyst, wherein the indium(III) salt is indium tris (trifluoromethanesulfonate). Significantly, the claimed process is carried out in the absence of a solvent. The other pending claims depend on claim 1 and incorporate these limitations by nature of their dependency.

The claimed invention is not obvious in view of the cited references at least because the cited references do not disclose all of the limitations of the claims. Takahashi, as described by the Examiner, is defective at least because it do not specifically teach the use of indium triflate. Further, Takahashi do not teach converting the obtained 2,3,5-trimethylhydroquinone diester into (all-rac)- α -tocopherol by transesterification to yield 2,3,5-trimethylhydroquinone and the reaction of the latter with

isophytol and/or phytol. Finally, Takahashi discloses that a small amount of solvent is advantageous in its process. This is not Applicants' claimed invention.

The addition of Chauhan, Krill, and Schneider does not solve the multiple defects of Takahashi. Each of Chauhan, Krill, and Schneider is completely silent as to a process performed without solvent to produce 2,3,5-trimethylhydroquinone dialkanoate. Furthermore, since each of Chauhan, Krill, and Schneider does not discuss a reaction without solvent, there is no expectation of success that reagents discussed in the context of a reaction in solvent would be applicable to a solventless process. Therefore, even if Chauhan, Krill, and Schneider were combined in a solventless system with Takahashi, one of skill in the art would have no expectation that such a system would successfully lead to Applicants' claimed process for the manufacture 2,3,5-trimethylhydroquinone dialkanoate.

Further, the cited references teach away from the claimed invention. The claimed invention, as recited in Claim 1, relates to a solventless process only. Takahashi indicates that the use a solvent is advantageous for increasing the efficiency of crystallization. See, Takahashi, column 6, first full paragraph. The processes of the other references either involve a solvent are either silent as to a solventless system. Significantly, none of the cited references promotes the use of a solventless process. Because of this, the cited references in any combination clearly teach against and away from the claimed invention of a process performed without solvents.

In addition to the above, the claimed invention provides a number of advantages that are not appreciated nor solved by the cited references. A process performed without solvent is simpler because it does not involve handling of an additional compound. Further, at the end of the reaction no solvent has to be removed and no solvent has to be recycled. Therefore, a process that does not involve solvents is more ecologically and economically sound since process chemicals (solvents) including their storage and disposal, and process steps (introduction of solvent, removal of solvents) are eliminated.

Withdrawal of the Section 103 rejections is requested because the claims would not have been obvious to one of ordinary skill in the art when this invention was made.

Conclusion

Having fully responded to the pending Office Action, Applicants submit that the claims are in condition for allowance and earnestly solicit an early Notice to that effect. The Examiner is invited to contact the undersigned if additional information is required.

Respectfully submitted,

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